Figure 1

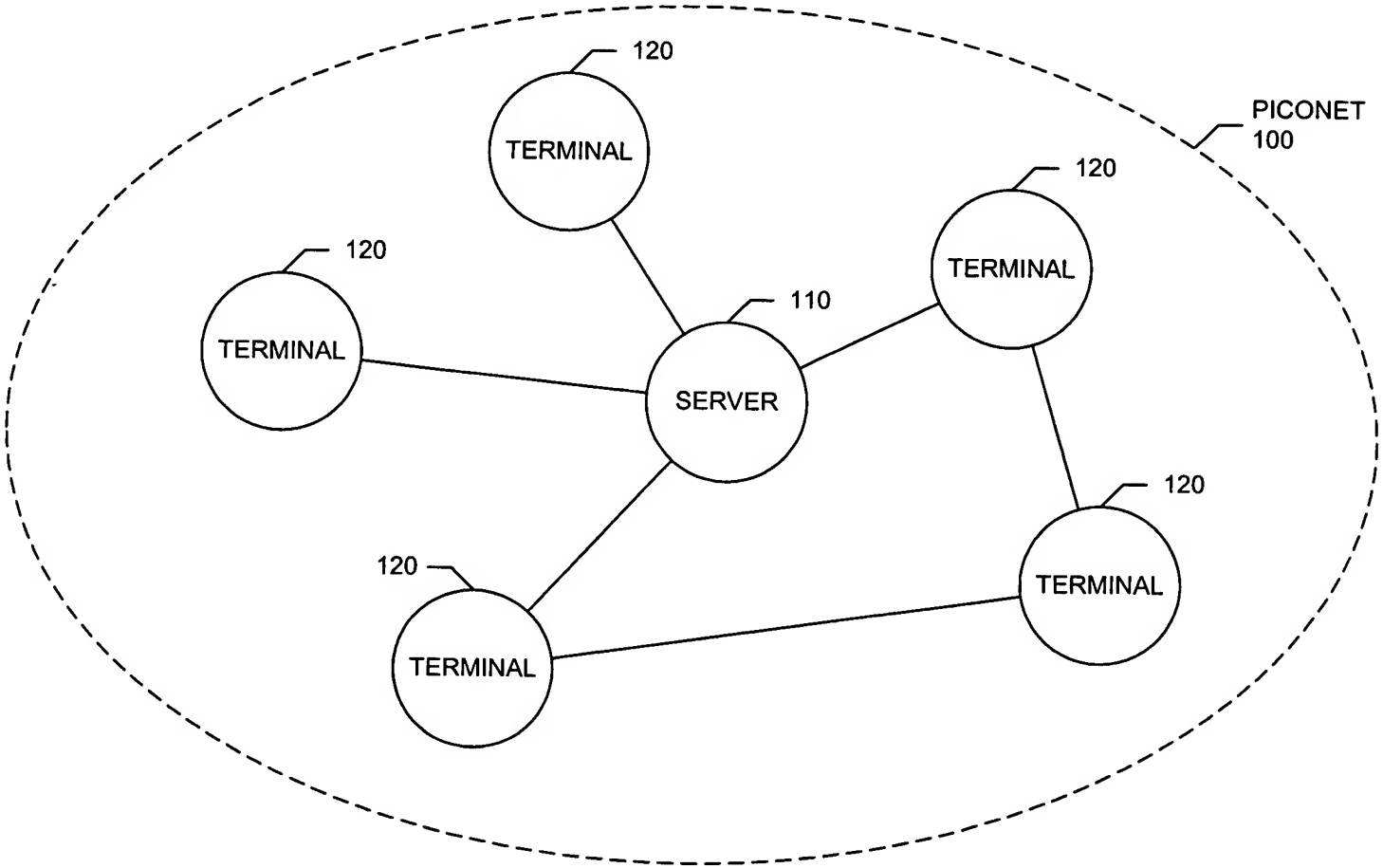

PICONET
100
120
TERMINAL
120
TERMINAL
110
SERVER
120
TERMINAL
120
TERMINAL
120
TERMINAL

Figure 2A

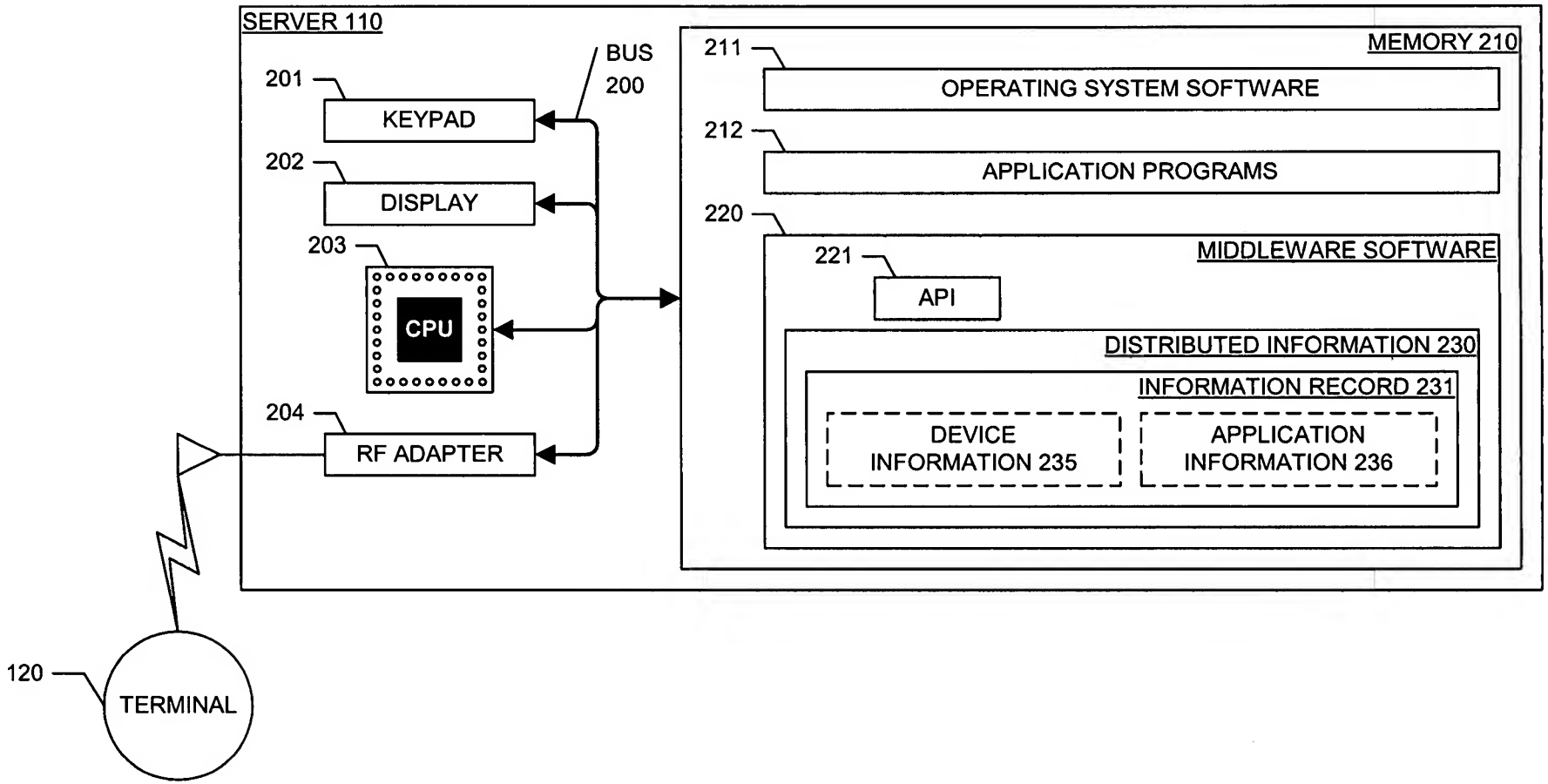

SERVER 110
BUS
200
201
KEYPAD
202
DISPLAY
203
CPU
204
RF ADAPTER
MEMORY 210
211
OPERATING SYSTEM SOFTWARE
212
APPLICATION PROGRAMS
220
MIDDLEWARE SOFTWARE
221
API
DISTRIBUTED INFORMATION 230
INFORMATION RECORD 231
DEVICE
INFORMATION 235
APPLICATION
INFORMATION 236
120
TERMINAL

Figure 2B

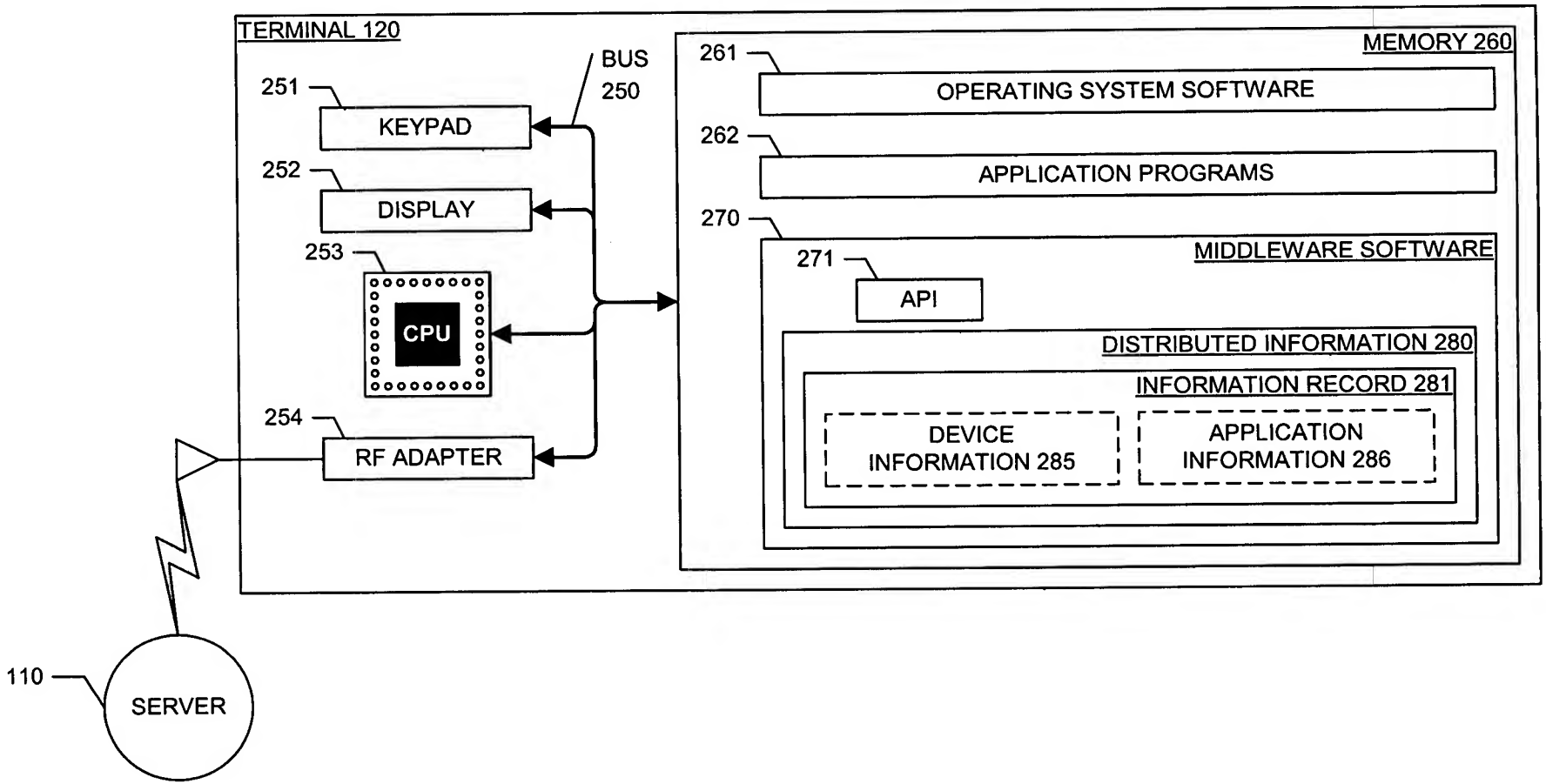

TERMINAL 120
BUS
250
251
KEYPAD
252
DISPLAY
253
CPU
254
RF ADAPTER
MEMORY 260
261
OPERATING SYSTEM SOFTWARE
262
APPLICATION PROGRAMS
270
MIDDLEWARE SOFTWARE
271
API
DISTRIBUTED INFORMATION 280
INFORMATION RECORD 281
DEVICE INFORMATION 285
APPLICATION INFORMATION 286
110
SERVER

Figure 3A

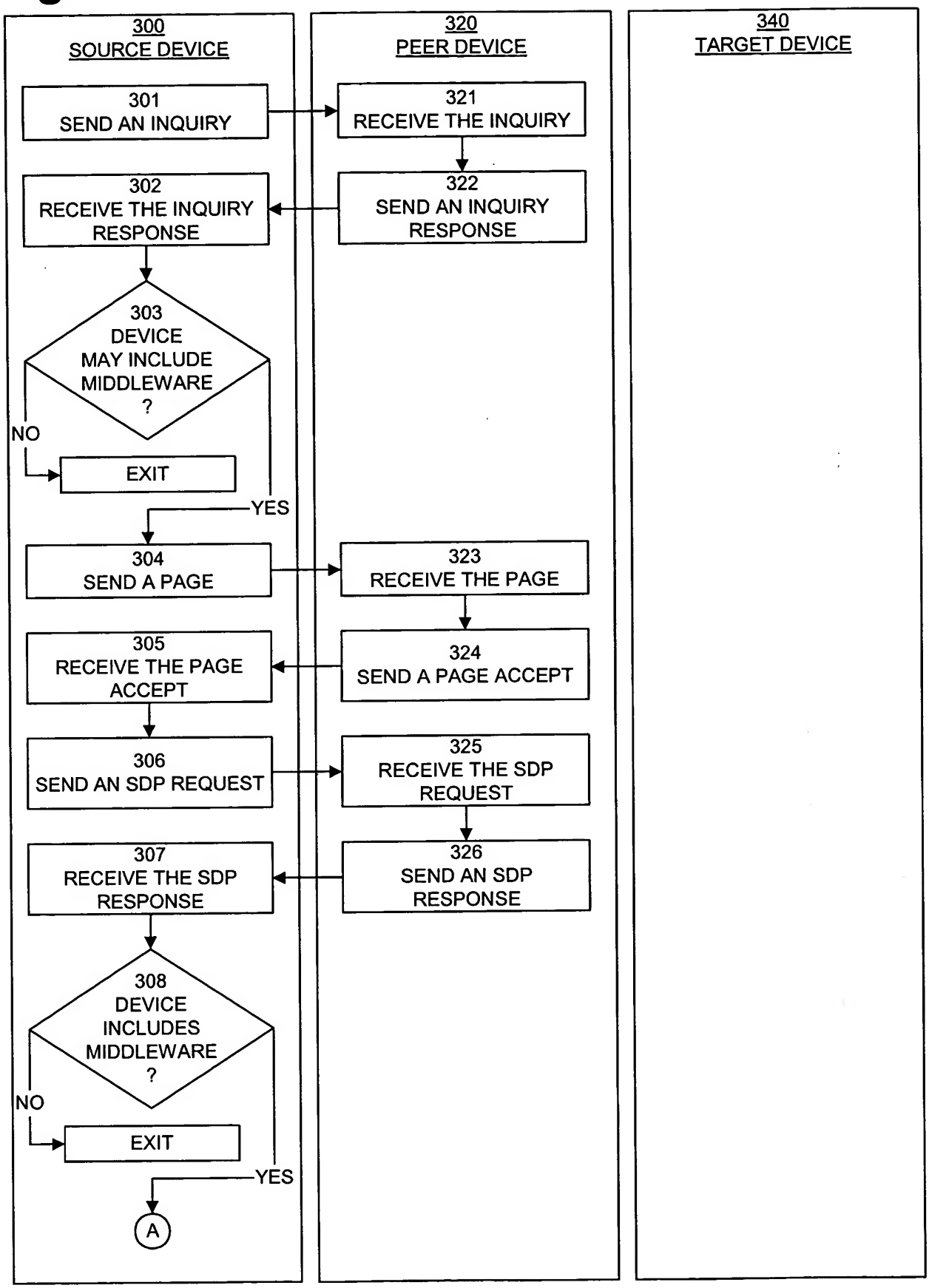

300
SOURCE DEVICE
320
PEER DEVICE
340
TARGET DEVICE
301
SEND AN INQUIRY
321
RECEIVE THE INQUIRY
322
SEND AN INQUIRY RESPONSE
302
RECEIVE THE INQUIRY RESPONSE
303
DEVICE MAY INCLUDE MIDDLEWARE ?
NO
EXIT
YES
304
SEND A PAGE
323
RECEIVE THE PAGE
324
SEND A PAGE ACCEPT
305
RECEIVE THE PAGE ACCEPT
306
SEND AN SDP REQUEST
325
RECEIVE THE SDP REQUEST
326
SEND AN SDP RESPONSE
307
RECEIVE THE SDP RESPONSE
308
DEVICE INCLUDES MIDDLEWARE ?
NO
EXIT
YES
A

Figure 3B

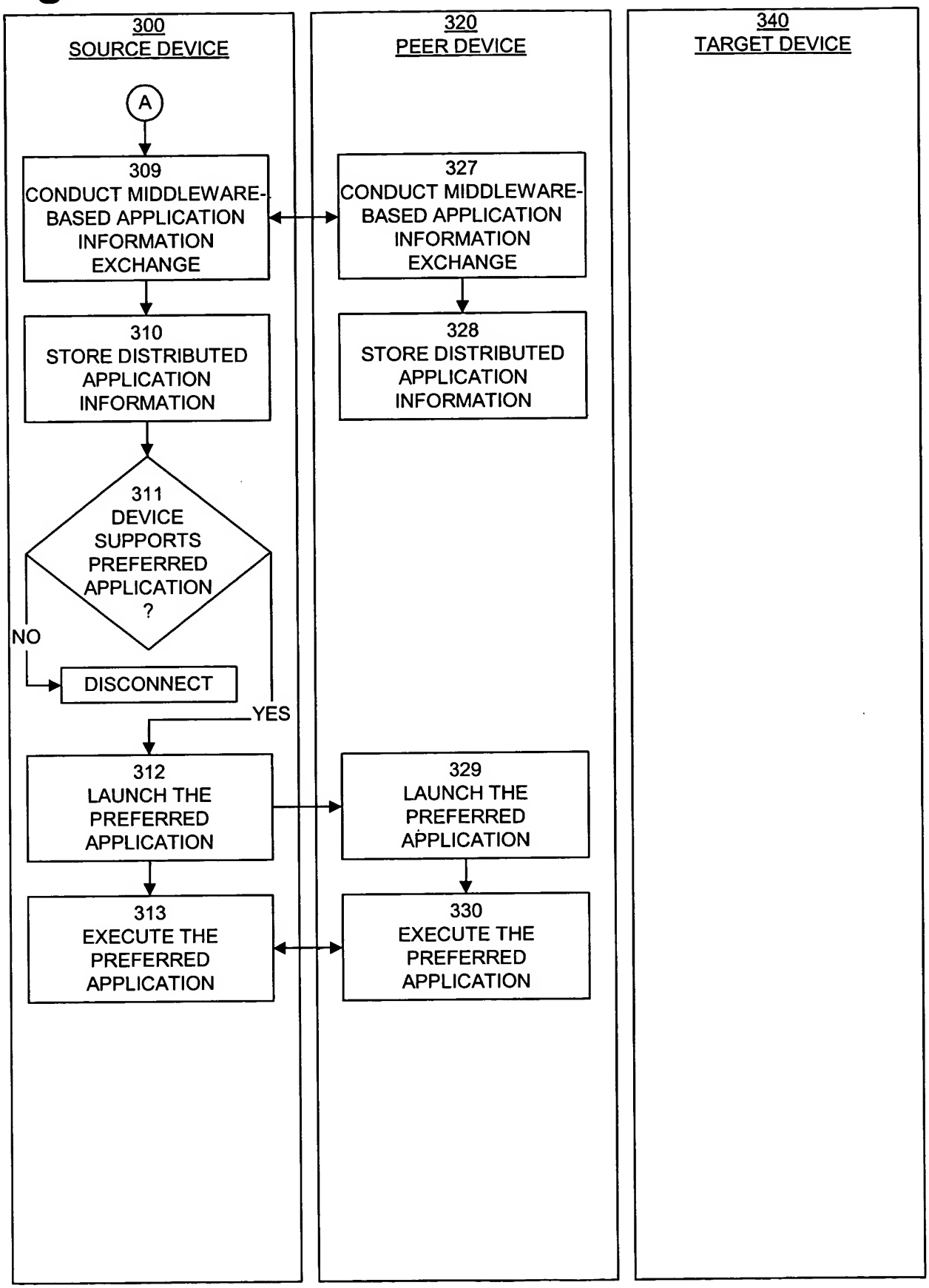

300
SOURCE DEVICE
320
PEER DEVICE
340
TARGET DEVICE
A
309
CONDUCT MIDDLEWARE-BASED APPLICATION INFORMATION EXCHANGE
327
CONDUCT MIDDLEWARE-BASED APPLICATION INFORMATION EXCHANGE
310
STORE DISTRIBUTED APPLICATION INFORMATION
328
STORE DISTRIBUTED APPLICATION INFORMATION
311
DEVICE SUPPORTS PREFERRED APPLICATION ?
NO
DISCONNECT
YES
312
LAUNCH THE PREFERRED APPLICATION
329
LAUNCH THE PREFERRED APPLICATION
313
EXECUTE THE PREFERRED APPLICATION
330
EXECUTE THE PREFERRED APPLICATION

Figure 3C

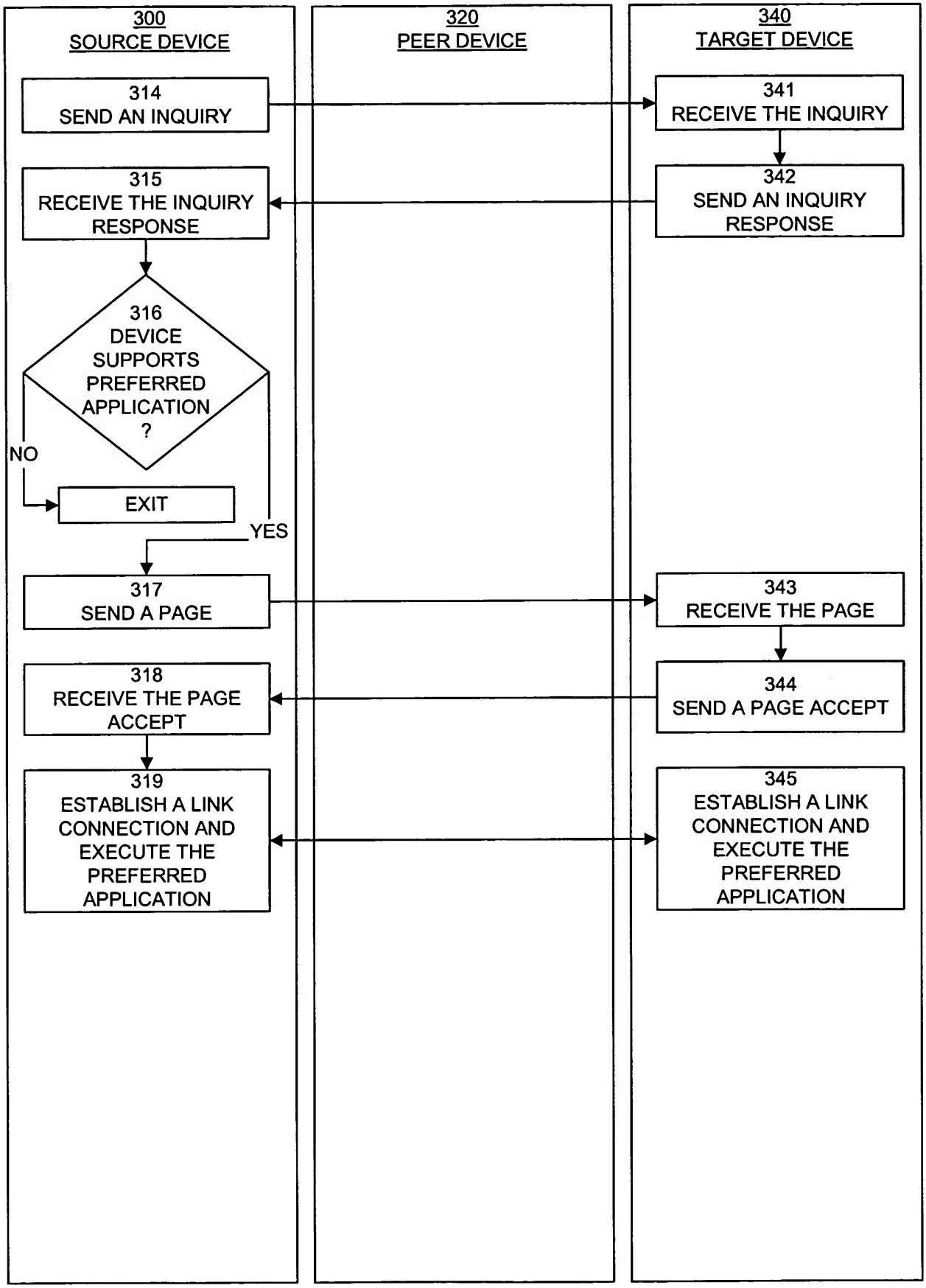
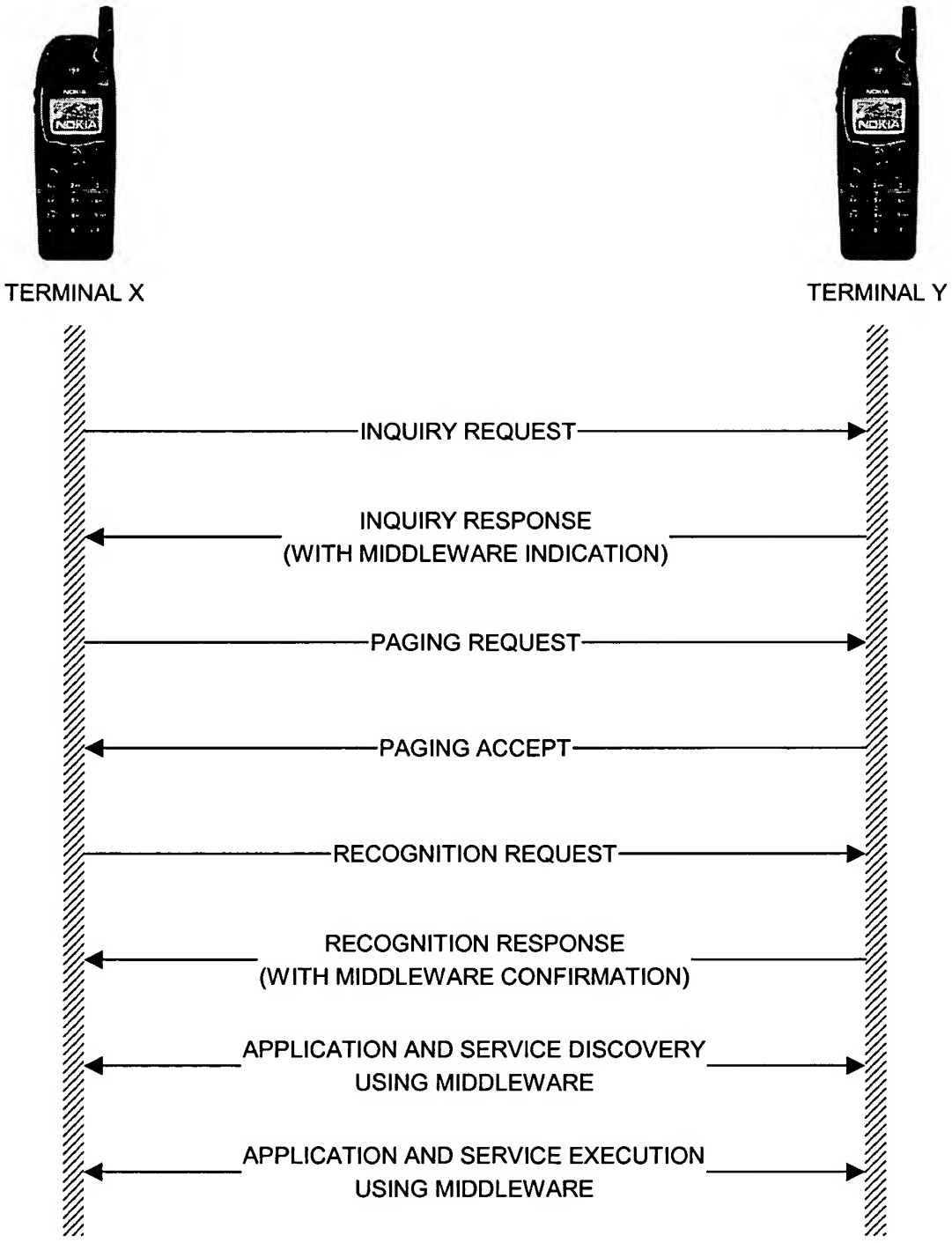

300
SOURCE DEVICE
320
PEER DEVICE
340
TARGET DEVICE
314
SEND AN INQUIRY
341
RECEIVE THE INQUIRY
315
RECEIVE THE INQUIRY RESPONSE
342
SEND AN INQUIRY RESPONSE
316
DEVICE SUPPORTS PREFERRED APPLICATION ?
NO
EXIT
YES
317
SEND A PAGE
343
RECEIVE THE PAGE
318
RECEIVE THE PAGE ACCEPT
344
SEND A PAGE ACCEPT
319
ESTABLISH A LINK CONNECTION AND EXECUTE THE PREFERRED APPLICATION
345
ESTABLISH A LINK CONNECTION AND EXECUTE THE PREFERRED APPLICATION

Figure 4


TERMINAL X
TERMINAL Y
INQUIRY REQUEST
INQUIRY RESPONSE
(WITH MIDDLEWARE INDICATION)
PAGING REQUEST
PAGING ACCEPT
RECOGNITION REQUEST
RECOGNITION RESPONSE
(WITH MIDDLEWARE CONFIRMATION)
APPLICATION AND SERVICE DISCOVERY
USING MIDDLEWARE
APPLICATION AND SERVICE EXECUTION
USING MIDDLEWARE